## Visual Analysis Report

## Proposed Telecommunications Facility 150' Monopole

Rich Road Thompson, CT 06277

May 2007 - Revision 1

#### **Prepared for:**

MCF Communications, Inc. 733 Turnpike Street, Suite 105 North Andover, MA 01845

#### **Prepared by:**

Clough Harbour & Associates LLP 2139 Silas Deane Highway, Suite 212 Rocky Hill, CT 06067 CHA Project 14957-1006-1601

#### **INTRODUCTION:**

Clough Harbour & Associates LLP (CHA) conducted a visibility study for the proposed 150'-0" monopole located in Thompson, CT. The purpose of the study was to determine the visual impact, if any, that a proposed 150'-0" monopole would have on the surrounding community within a two mile radius study area. Two techniques were utilized to determine the visual impact within the study area: a computer model using topography and vegetation as constraints to estimate the visual limits and a field analysis to verify the visual limits determined from the computer model. Research of the study area was also conducted to determine locations of sensitive visual receptors.

#### **SITE & STUDY AREA DESCRIPTION:**

The subject parcel is approximately 8 acres. The entire parcel is wooded and no residences or structures are located on the parcel. There is a watercourse running down the approximate center of the parcel in a north-south direction. The proposed facility is located at the northeast corner of the property. The base of the tower will be 626' AMSL. The wooded area surrounding the facility on all sides will act as a visual buffer to the adjacent properties.

The topography within the study area consists of hills ranging from 150' AMSL to 650' AMSL. Approximately 5,442 acres, or 68%, of the 8,053 acre study area is covered with vegetation. The rolling hills and vegetation in the study area will help screen the facility in the surrounding study area. Watercourses occupy approximately 450 acres, or 6%, of the study area. There are no historical sites, two parks/recreational areas, no schools, four cemeteries, and one church within the study area. No hiking trails were observed during the field analysis and site research. Also, no scenic roads were observed during the field visual analysis or listed on the CT DOT list of designated scenic roads.

#### **COMPUTER MODEL VISUAL ANALYSIS:**

A computer model was developed using a proprietary AutoCAD-based application developed by our Technology Solutions Group to estimate how the surrounding topography and vegetation within a 2 mile radius may obstruct the monopole's visibility. The visibility calculations are completed using digital elevation models (DEM), which is a model of the earth's surface represented by a grid of elevations spaced 10 or 30 meters and is based on USGS topography maps. Each point in the DEM is independently tested for visibility based on the surrounding topography developed from the USGS maps. Once all points have been tested, a map is generated showing areas of visibility and areas screened by topography. Knowing which areas are screened by topography will assist in field determining which areas within the study area may have seasonal visibility. Next, vegetation within the study area is added to the map by digitizing it from 2004 aerial photographs. CHA's application utilizes a vegetation outline layer which is assigned the standard 65' height. A new map is generated showing only areas of visibility based on topography and the vegetation constraint. The visible areas on the map based on the surrounding topography and vegetation will be verified during the field visual analysis.

#### **VISUAL RECEPTOR RESEARCH:**

Research of the surrounding study area was conducted to determine the locations of sensitive visual receptors such as historic sites, historic districts, schools, churches, cemeteries, parks, playgrounds, recreational areas, beaches, and scenic roads. Historic sites and districts were determined from national and state registers. Surrounding schools, churches, cemeteries, parks, playgrounds, recreational areas, and beaches were determined from street maps and town GIS data. Scenic roads were determined from the CTDOT list of designated scenic roads. All of the above sensitive visual receptors were added to the viewshed map.

#### FIELD VISUAL ANALYSIS:

On April 30, 2007 a field visual analysis was conducted to verify the sensitive visual receptors and the limit of visibility determined from our research and computer model. Weather conditions were favorable on the date of the visibility study as it was a clear and sunny day with winds between 8 and 11 MPH; therefore, visibility of the balloon from surrounding areas was not affected. In general, the field visibility study was conducted as follows: A 60" diameter red balloon was flown at a height of 150'-0" above existing grade. Once the balloon was flown, CHA completed a field drive of the surrounding area to determine the visibility of the balloon, and thus the proposed tower. Visibility from the sensitive visual receptors was our primary focus so photos were taken from each of these locations. Photos were also taken from major streets, intersections, and residential areas; from key areas where the balloon was visible; and from key areas where it was not visible. The limits of visibility determined from the computer model were field verified and adjusted as needed. Areas of potential seasonal visibility were field determined and marked on the viewshed map. Finally, the number of residences within the seasonal and year round visible areas was determined.

#### **CONCLUSION:**

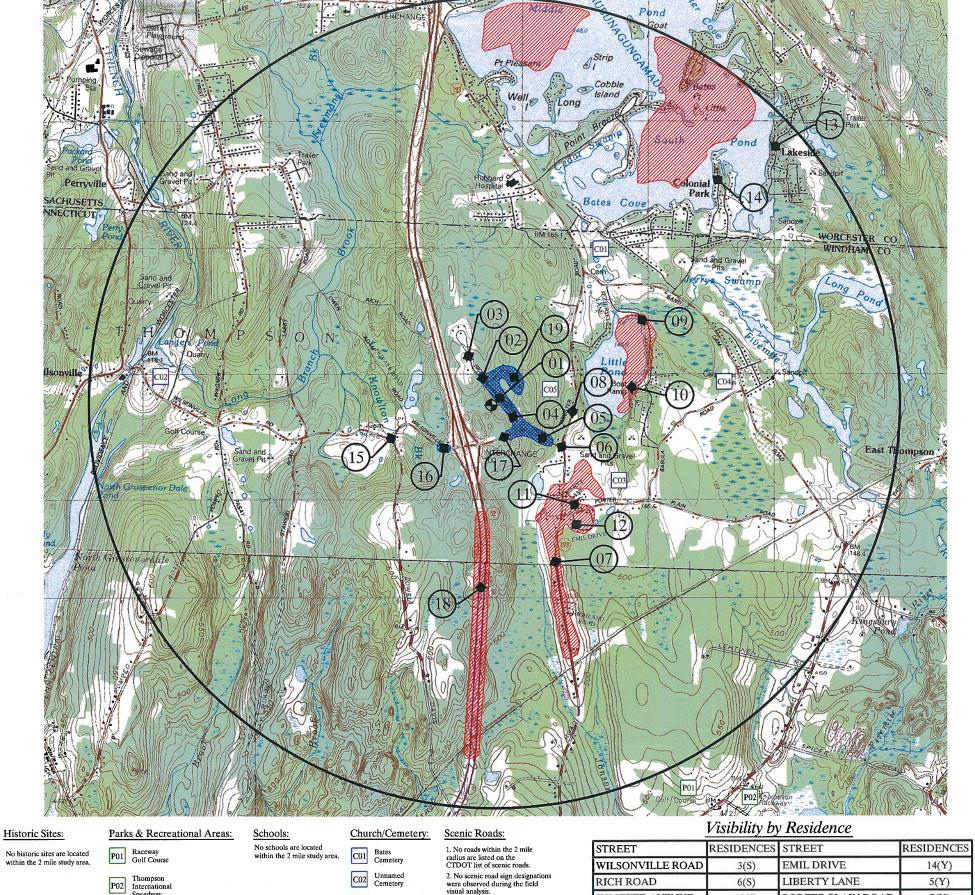
The results of our visual study are summarized in the following attachments: Attachment A: Viewshed Map, and Attachment B: Photosimulations. In conclusion, the year round visual impact to the surrounding community within a two mile radius is limited to the red hatched areas on the viewshed map, which is approximately 5%, or 392 Acres, of the total study area. The limit of year round visibility includes the area surrounding the following public streets: a 6,300' stretch along I-395, a 4,500' stretch along Thompson Road, a 150' stretch along Highland Road, an 800' stretch along Porter Plain Road, a 1,200' stretch along Emil Drive, a 300' stretch along Liberty Lane, a 1,500' stretch along Jezierski Lane, and an 800' stretch along Bates Point Road. These areas contain residential properties and will impact the following number of residences: 28 residences along Thompson Road, 2 residences along Highland Road, 14 Residences along Emil Drive, 5 residences along Liberty Lane, 7 residences along Porter Plain Road, 17 Residences along Jezierski Lane, and 23 residences along Bates Point Road. The proposed monopole will not be seen year round from any of the sensitive visual receptors listed on the viewshed map.

The blue hatched areas on the viewshed map indicate the seasonal visual impact, which is approximately 0.40%, or 32 acres, of the total study area. The limit of seasonal visibility includes the area surrounding the following public streets: a 1,200' stretch along Wilsonville Road, an 1,800' stretch along Rich Road, and a 1,200' stretch along Juliette Avenue. These areas contain residential properties and will impact the

following number of residences: 3 residences along Wilsonville Road, 6 residences along Rich Road, and 10 residences along Juliette Avenue. The proposed monopole will not be seen seasonally from any of the sensitive visual receptors listed on the viewshed map.

The remainder of the two mile radius study area is screened by topography (2,038 acres, 25.3%) & vegetation (5,591 Acres, 69.3%). Photos documenting the non-visible and visible conditions described above have been included in the photo-simulations with their locations marked on the viewshed map.

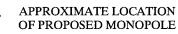
## ATTACHMENT A VIEWSHED MAP



- 1. Only visible areas are shown on the map utilizing the process described in note 2. The remainder of the map has
- been estimated to be nonvisible utilizing the process described in note 3.

  2. Seasonal and year round areas of visibility were estimated from a field visual analysis within public R.O.W. and public properties. Areas shown on private property were interpolated from the field visual analysis.
- 3. Nonvisible areas were estimated from a computer generated topography & vegetation analysis and field verification of vegetation & building screening within public R.O.W and public properties. Vegetation limits were determined from 2004 aerial photos and is assumed to be 65' high. Verification of vegetation height, coverage, and type within private areas not visible from public R.O.W or public properties was not field verified.
- 4. Historical areas were determined from national and state historical registers.
- 5. Parks, schools, cemeteries, and churches were determined from street maps and field observations.
- 6. Scenic roads, if any, were determined from the CTDOT list of designated scenic roads and field observations.

#### Legend





COMPUTER SIMULATION PHOTOGRAPH LOCATION



LIMIT OF SEASONAL TOWER VISIBILITY



OF YEAR ROUND TOWER VISIBILITY





H# HISTORICAL SITE



TRAIL OR SCENIC ROAD

#### Visibility by Acreage

ITEM	APPROXIMATE ACRES	% OF TOTAL AREA
2 MILE RADIUS AREA	8,053	100%
NOT VISIBLE DUE TO TOPOGRAPHY	2,038	25.3%
NOT VISIBLE DUE TO VEGETATION	5,591	69.3%
YEAR ROUND VISIBILITY	392	5%
SEASONAL VISIBILITY	32	0.40%

#### Distances from Photo Locations to Tower

PHOTO	DIST. (FT)	РНОТО	DIST. (FT)	РНОТО	DIST. (FT)
01	250	10	3,700	19	950
02	750	11	3,400		
03	1,400	12	3,800		
04	650	13	10,000	18 17	
05	1,600	14	8,300		
06	2,100	15	2,800		
07	4,400	16	1,700		33
08	2,100	17	907		
09	4,500	18	4,800		

## 2 MILE VIEWSHED ANALYSIS MAP

THOMPSON - RICH ROAD VISUAL IMPACT ASSESSMENT

PREPARED FOR:

#### MCF Communications, Inc.

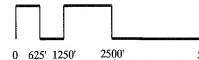
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FAX: (978) 258-8850

MAY 2007





**FIGURE VS-RICH ROAD** 

23(Y) BATES POINT ROAD

5(Y)

7(Y)

17(Y)

(S) = SEASONAL VIEW (Y) = YEAR ROUND VIEW

LIBERTY LANE

JEZIERSKI LANE

PORTER PLAIN ROAD

6(S)

10(S)

28(Y)

2(Y)

RICH ROAD

JULIETTE AVENUE

THOMPSON ROAD

HIGHLAND ROAD

# ATTACHMENT B PHOTOSIMS





DATE: MAY 2007 SITE: THOMPSON

VIEW 1 - EXISTING VIEW FROM 39 RICH ROAD LOOKING WEST TOWARDS SITE

## MCF Communications, Inc.





DATE: MAY 2007 SIT

**SITE: THOMPSON** 

VIEW 1 - PROPOSED VIEW FROM 39 RICH ROAD LOOKING WEST TOWARDS SITE (SEASONAL VISIBILITY)

## MCF Communications, Inc.





DATE: MAY 2007 SITE: THOMPSON

VIEW 2 - EXISTING VIEW FROM 66 & 70 RICH ROAD LOOKING SOUTHWEST TOWARDS SITE

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DATE: MAY 2007 SITE: THOMPSON

VIEW 2 - PROPOSED VIEW FROM 66 & 70 RICH ROAD LOOKING SOUTHWEST TOWARDS SITE (SEASONAL VISIBILITY)

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DATE: MAY 2007 SITE: THOMPSON

VIEW 3 - NON-VISIBLE FROM 89 & 90 RICH ROAD LOOKING SOUTH TOWARDS SITE

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DATE: MAY 2007 | SITE: THOMPSON

VIEW 4 - EXISTING VIEW FROM 15 RICH ROAD LOOKING NORTHWEST TOWARDS SITE

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DATE: MAY 2007 SI

**SITE: THOMPSON** 

VIEW 4 - PROPOSED VIEW FROM 15 RICH ROAD LOOKING NORTHWEST TOWARDS SITE (SEASONAL VISIBILITY)

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DATE: MAY 2007 SITE: THOMPSON

VIEW 5 - EXISTING VIEW FROM 471 WILSONVILLE ROAD LOOKING NORTHWEST TOWARDS SITE

## MCF Communications, Inc.





DATE: MAY 2007 SITE: THOMPSON

VIEW 5 - PROPOSED VIEW FROM 471 WILSONVILLE ROAD LOOKING NORTHWEST TOWARDS SITE (SEASONAL VISIBILITY)

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DATE: MAY 2007 SITE: THOMPSON

VIEW 6 - NON-VISIBLE FROM THE INTERSECTION OF WILSONVILLE ROAD & ROUTE 193 LOOKING NORTHWEST TOWARDS SITE

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DATE: MAY 2007 SITE: THOMPSON

VIEW 7 - EXISTING VIEW FROM 1081 ROUTE 193 LOOKING NORTHWEST TOWARDS SITE

## MCF Communications, Inc.





DATE: MAY 2007 | SITE: THOMPSON

VIEW 7 - PROPOSED VIEW FROM 1081 ROUTE 193 LOOKING NORTHWEST TOWARDS SITE (ABOVE TREES)

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DATE: MAY 2007 SITE: THOMPSON

VIEW 8 - NON-VISIBLE FROM HIGH POINTE CHURCH ON ROUTE 193 LOOKING WEST TOWARDS SITE

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DATE: MAY 2007 SITE: THOMPSON

VIEW 9 - EXISTING VIEW FROM 54 & 56 JEZIERSKI LANE LOOKING SOUTHWEST TOWARDS SITE

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DATE: MAY 2007 SITE: THOMPSON

VIEW 9 - PROPOSED VIEW FROM 54 & 56 JEZIERSKI LANE LOOKING SOUTHWEST TOWARDS SITE (ABOVE TREES)

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DATE: MAY 2007 SITE: THOMPSON

VIEW 10 - EXISTING VIEW FROM LITTLE POND BOAT LAUNCH LOOKING WEST TOWARDS SITE

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DATE: MAY 2007 | SITE: THOMPSON

VIEW 10 - PROPOSED VIEW FROM LITTLE POND BOAT LAUNCH LOOKING WEST TOWARDS SITE (ABOVE TREES)

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DATE: MAY 2007 SITE: THOMPSON

VIEW 11 - EXISTING VIEW FROM 8 LIBERTY LANE LOOKING NORTHWEST TOWARDS SITE

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DATE: MAY 2007 SITE:

SITE: THOMPSON

VIEW 11 - PROPOSED VIEW FROM 8 LIBERTY LANE LOOKING NORTHWEST TOWARDS SITE (ABOVE TREES)

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DATE: MAY 2007 SITE: THOMPSON

VIEW 12 - EXISTING VIEW FROM 16 EMIL DRIVE LOOKING NORTHWEST TOWARDS SITE

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DATE: MAY 2007 SITE: THOMPSON

VIEW 12 - PROPOSED VIEW FROM 16 EMIL DRIVE LOOKING NORTHWEST TOWARDS SITE (ABOVE TREES)

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DATE: MAY 2007 SITE: THOMPSON

VIEW 13 - NON-VISIBLE FROM 82 & 83 LAKESIDE AVENUE LOOKING SOUTHWEST TOWARDS SITE

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DATE: MAY 2007 SITE: THOMPSON

VIEW 14 - NON-VISIBLE FROM 51 COLONIAL AVENUE LOOKING SOUTHWEST TOWARDS SITE

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DATE: MAY 2007 SITE:

**SITE: THOMPSON** 

VIEW 15 - NON-VISIBLE FROM INTERSECTION OF WILSONVILLE ROAD & LOWELL DAVIS ROAD LOOKING NORTHEAST TOWARDS SITE

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DATE: MAY 2007 SITE: THOMPSON

VIEW 16 - EXISTING VIEW FROM 354 WILSONVILLE ROAD LOOKING NORTHEAST TOWARDS SITE

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DATE: MAY 2007 SITE: THOMPSON

VIEW 16 - PROPOSED VIEW FROM 354 WILSONVILLE ROAD LOOKING NORTHEAST TOWARDS SITE (SEASONAL VISIBILITY)

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DATE: MAY 2007 SITE: THOMPSON

VIEW 17 - NON-VISIBLE FROM WILSONVILLE ROAD LOOKING NORTH TOWARDS SITE

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DATE: MAY 2007 SITE: THOMPSON

VIEW 18 - EXISTING VIEW FROM I-395 NORTH 0.5 MILES FROM EXIT 100 LOOKING NORTHEAST TOWARDS SITE

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DATE: MAY 2007 SITE: THOMPSON

VIEW 18 - PROPOSED VIEW FROM I-395 NORTH 0.5 MILES FROM EXIT 100 LOOKING NORTHEAST TOWARDS SITE (ABOVE TREES)

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DATE: MAY 2007 SITE: THOMPSON

VIEW 19 - EXISTING VIEW FROM JULIETTE AVENUE LOOKING WEST TOWARDS SITE

## MCF Communications, Inc.





DATE: MAY 2007 SITE: THOMPSON

VIEW 19 - PROPOSED VIEW FROM JULIETTE AVENUE LOOKING WEST TOWARDS SITE (SEASONAL VISIBILITY)

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